
Technology-Based Effluent Limits for Municipal Dischargers

Permit Components

Industry-Specific Components

- Effluent Guidelines
- BPJ

Components of All Permits

Cover Page

Effluent Limitations

Technology-Based

Water Quality-Based

Monitoring & Reporting Requirements

Special Conditions

Compliance Schedules

Storm Water

Special Studies, Evaluations, and Other Requirements

Standard Conditions

Municipal-Specific Components

- **Secondary**
- Equivalent to Secondary

- Pretreatment
- CSOs
- Municipal Sewage Sludge



Learning Objectives

- ◆ Describe secondary treatment regulations
- ◆ Explain equivalent to secondary requirements

Technology-Based Requirements for Municipal Dischargers Secondary Treatment

	30 Day Average	7 Day Average
5-Day BOD	30 mg/l	45 mg/l
TSS	30 mg/l	45 mg/l
Removal	85% BOD ₅ and TSS	—
pH	6 – 9	—

(40 CFR Part 133)

Note: Compliance Deadline = 7/1/88



Calculation of Permit Limits

- ◆ **Must be concentration-based because secondary treatment standards are expressed in concentration units (40 CFR § 122.45 (f)(1)(ii))**
- ◆ **May also be mass-based**
 - **If mass-based, use design flow of the treatment plant (40 CFR § 122.45(b))**

Calculation of Permit Limits (Continued)

Example calculation:

5 day BOD: 30 day average = 30 mg/L

POTW Design Flow = 5.0 mgd

BOD Limit = (5 mgd)(30 mg/L)(8.34*) = 1,251 lbs/day

* 8.34 is the conversion factor

What if:

POTW Actual Flow = 7 mgd ?

POTW Actual Flow = 2.5 mgd ?



Percent Removal Requirement

- ◆ Permit requirement expressed as percent removal required
- ◆ Compliance determined based on 30 day average removal

$$\frac{(30 \text{ day average influent mass} - 30 \text{ day average effluent mass})}{(30 \text{ day average influent mass})} \times 100$$

Exceptions/Alternatives to Secondary Treatment Requirements

- ◆ **Substitution of CBOD₅ for BOD₅**
[133.102(a)(4)]
 - 25 mg/L, 30 day average
 - 40 mg/L, 7 day average
- ◆ **Substitution of COD or TOC for BOD₅**
[133.104(b)]
 - Site-specific relationship developed

Exceptions/Alternatives to Secondary Treatment Requirements

- ◆ **Adjustments to reflect:**
 - Combined sewers [133.103(a)]
 - Industrial wastes [133.103(b)]
 - Waste stabilization ponds [133.103(c)]
 - Less concentrated influent for separate sewers [133.103(d)]
 - Less concentrated influent for combined sewers [133.103(e)]

Exceptions/Alternatives to Secondary Treatment Requirements

- ◆ Treatment equivalent to secondary
- ◆ Waiver from secondary treatment for marine discharges

Equivalent to Secondary

- ◆ Must be trickling filter or waste stabilization pond (lagoon)
- ◆ Biological treatment ³ 51% of treatment
- ◆ Plant exceeds 30/30 with proper O&M
- ◆ Water quality not adversely affected
- ◆ Equivalent to secondary limits:
 - Up to 45 mg/l (30 day average)
 - Up to 65 mg/l (7 day average)
 - Not less than 65% removal
- ◆ Guidance distributed December 1985



Conditions to Consider in Applying Equivalent to Secondary Effluent Limitations

- ◆ Treatment works operating beyond the design hydraulic capacity or organic loading limit are not considered eligible for equivalent to secondary limitations
- ◆ New facilities

Conditions to Consider in Applying Equivalent to Secondary Effluent Limitations (Continued)

- ◆ Calculation of equivalent to secondary limitations
- ◆ Combination of biological treatment processes employed at a facility
- ◆ Alternative State Requirements (ASRs)

Sources of Facility Information

- ◆ Application Form 2A
- ◆ Supplemental information (sludge, toxicity, CSOs, pretreatment)
- ◆ Discharge Monitoring Reports (DMRs)
- ◆ Pretreatment program submissions
- ◆ Annual pretreatment reports
- ◆ Pretreatment audits